What is claimed is

1. A method of forming an image on a label surface of an optical disk, the method comprising the steps of:

forming a visible light characteristic changing layer in a position which can be viewed from a label surface side of an optical disk, the visible light characteristic changing layer changing a characteristic of visible light from the label surface by exposure to a laser beam, from the label surface side, used for recording a signal;

setting the optical disk on a turntable of an optical disk unit so that a label surface of the optical disk is oriented toward a direction in which a laser beam from an optical pickup is to enter;

relatively moving the optical disk and the laser beam along a plane of the optical disk;

modulating the laser beam, in synchronism with the relative movement, into a specific characteristic in accordance with image data to be printed; and

emitting the modulated laser beam to the visible light characteristic changing layer from the label surface side, wherein a reflection characteristic of the visible light in the visible light characteristic changing layer is changed by exposure, so that a image corresponding to the image data is printed on the label surface.

2. The method according to claim 1, wherein the laser beam used for recording a signal is a laser beam of predetermined power or higher.

3. The method according to claim 1, wherein the optical pickup is moved in a radial direction of the optical disk while the optical disk is being rotated.

4. The method according to claim 1, wherein the optical disk is made stationary, and the optical pickup is moved in a radial direction of the optical disk and in a direction which is orthogonal to the radial direction of the optical disk and is tangent to a track.

5. An optical disk unit comprising:

a relative movement mechanism for relatively moving an optical disk set on a turntable in a state that a label surface is oriented in a direction in which a laser beam is to enter, and a laser beam emitted from an optical pickup along a plane of the optical disk;

a laser modulation circuit for modulating a laser beam emitted from the optical pickup; and

a controlling circuit for controlling the relative movement mechanism and the laser modulation circuit,

wherein the control circuit controls the relative

movement mechanism to relatively move the optical disk and the laser beam, and controls the laser modulation circuit in accordance with image data to be formed on a label surface of the optical disk so that the laser beam emitted from the optical pickup on the basis of the image data is modulated, an image corresponding to the image data is formed on an area which can be viewed from label surface side of the optical disk.

6. The optical disk unit according to claim 5, wherein the relative movement mechanism includes a rotary drive device for rotationally driving a turntable and a radial-direction feed drive device for moving the optical pickup in a radial direction of the optical disk, and

the control circuit controls the rotary drive device and the radial-direction feed drive device, for controlling relative movement between the optical disk and the laser beam.

7. The optical disk unit according to claim 6, wherein the control circuit drives the rotary drive device to a constant rotating speed, for driving the radial-direction feed drive device by a predetermined amount at each predetermined rotary position.

8. The optical disk unit according to claim 6, further comprising:

a circumferential-direction position sensor for detecting a circumferential position of the optical disk, and a radial-direction position sensor for detecting a radial position of the optical pickup on the optical disk,

wherein the control circuit modulates a laser beam emitted from the optical pickup in accordance with the position detected by the circumferential-direction position sensor and the radial-direction position sensor and the image data to be formed on a label surface of the optical disk.

9. The optical disk unit according to claim 8, wherein the circumferential-direction position sensor includes a frequency generator generates a signal of frequency corresponding to rotation of the circumferential-direction position sensor rotated by the rotary drive device, and a multiplier for multiplying the frequency of the signal generated by the frequency generator.

10. The optical disk unit according to claim 5, wherein the relative movement mechanism includes a radial-direction feed drive device for moving the optical pickup in a radial direction of the optical disk, and a track-tangential-direction feed drive device for moving the optical pickup in a direction which is perpendicular to the radial direction of movement and is tangent to a track of the

optical disk; and

the control circuit controls relative movement between the optical disk and the laser beam by controlling the radial-direction position sensor and the track-tangential-direction feed drive device while the turntable is left in a stationary state.

11. The optical disk unit according to claim 10, further comprising:

a circumferential-direction position sensor for detecting a circumferential position of the optical disk; and

a track-tangential-direction position sensor for detecting a position which is orthogonal to the radial direction of movement and is tangent to a track of the optical disk,

wherein the laser beam emitted from the optical pickup is controlled in accordance with the position detected by the circumferential-direction position sensor and that detected by the track-tangential-direction position sensor, and image data to be formed on a label surface of the optical disk.

12. The optical disk unit according to claim 5, wherein the control circuit controls relative movement between the optical disk and the laser beam by turning off a tracking servo and turning on a focus servo.

13. The optical disk unit according to claim 5, wherein the control circuit performs a control operation for vibrating and driving a tracking actuator of the optical pickup while controlling relative movement between the optical disk and the laser beam.

14. An optical disk comprising:

a visible light characteristic changing layer which changes a visible characteristic of a laser beam by exposure to a laser beam having entered from a label surface side and which is formed in a location capable of being viewed from the label surface side.

15. The optical disk according to claim 14, wherein the visible light characteristic changing layer is a color-changing layer which undergoes fading, coloring, or changes in color or hue by exposure to the laser beam.

16. The optical disk according to claim 15, wherein the color-changing layer is one of a photosensitive or heat sensitive layer, and two layers fused or mixed together by exposure to the laser beam so as to change visible-light characteristic.

17. The optical disk according to claim 14, wherein

the optical disk is constituted by at least a recording layer, a first reflection layer, the visible light characteristic changing layer and a protective layer which are sequentially formed on a substrate.

18. The optical disk according to claim 17, wherein an intermediate layer is disposed between the first reflection layer and the visible light characteristic changing layer; and the first reflection layer and the intermediate layer are joined directly together, and the intermediate layer and the visible light characteristic changing layer are joined directly together.

19. The optical disk according to claim 17, wherein a part containing the visible light characteristic changing layer and a part which does not include the visible light characteristic changing layer and is joined directly to the first reflection layer and to the protective layer are formed so as to be finely mixed between the first reflection layer and the protective layer.

20. The optical disk according to claim 19, wherein the visible light characteristic changing layer is formed between the first reflection layer and the protective layer in the form of a plurality of dots or a plurality of voids, and

the first reflection layer is joined directly to the protective layer at outsides of the plurality of dots or insides of the plurality of voids.

21. The optical disk according to claim 14, wherein a light scattering layer, which is translucence and has a light scattering characteristic, is interposed between the first reflection layer and the visible light characteristic changing layer.

22. The optical disk according to claim 21, wherein the light scattering layer serves as an intermediate layer.

23. The optical disk according to claim 17, wherein

the recording layer is provided substantially intermediate position between the label surface and a surface in which a laser beam for recording enters,

the first reflection layer is provided to the recording layer, and

the visible light characteristic changing layer is provided on one of a second reflection layer and a translucence light scattering layer separated from the first reflection layer.

24. A optical disk comprising:

a first substrate;

a recording layer provided on the substrate;

a first reflection layer provided on the recording layer;

a visible light characteristic changing layer provided on the reflection layer, a visible light characteristic thereof being changed by exposure to a laser beam; and

a protective layer.

25. The optical disk according to claim 24 further comprising an intermediate layer provided between the first reflection layer and the visible light characteristic changing layer.

26. The optical disk according to claim 24 further comprising a light scattering layer provided between the first reflection layer and the visible light characteristic changing layer.

27. The optical disk according to claim 24 further comprising:

a buffer layer provided on the first reflection layer; and

a second reflection layer provided between the buffer layer and the visible light characteristic changing layer.

28. The optical disk according to claim 24 further comprising:

a second substrate provided on the first reflection layer;

and

a second reflection layer provided on the second substrate.

29. a method of forming an image on a optical disk which includes a substrate, a recording layer on the substrate, a reflection layer on the recording layer and a visible light characteristic changing layer on the reflection layer, by utilizing a laser beam, for recording a signal in the recording layer, emitted from an optical pickup of an optical disk unit, the method comprising the steps of:

setting the optical disk on a turntable of the optical disk unit so that the visible light characteristic changing layer is oriented toward the optical pickup; and

relatively moving the optical disk and the optical pickup, modulating the laser beam and emitting the modulated laser beam to the visible light characteristic changing layer based on image data from a host computer, so that the image corresponding to the image data is formed on the optical disk.